

An invitation to  
industrial  
corporations,  
professional  
organizations and  
trade associations to  
join in research

National Bureau of Standards  
U.S. Department of Commerce

# ASAP

Research Associates and their sponsoring  
employers benefit by the extensive  
resources of the National Bureau of  
Standards...instrumentation...techniques...  
facilities...and the skills of the staff

# The National Bureau of Standards Research Associate Program

## A Brief History

The NBS Research Associate Program had its origin in Federal legislation of 1892, making the scientific and technical facilities of the Government available for use by scientific investigators and students. In 1901, this legislation was extended to encompass specifically the newly established National Bureau of Standards. The extension was drafted by the Washington Academy of Sciences and was based on a resolution prepared by Dr. Alexander Graham Bell.

It is estimated that some 400 organizations and more than 1,000 individuals have participated in the Research Associate Program since its inception. Following World War I, it became a significant factor in NBS-industry relationships. Early programs stimulated the establishment of both independent industrial research facilities and technical associations. The collaboration made possible by the Research Associate Program has resulted in advances in fundamental knowledge and the development of measurement techniques now in widespread industrial use.

With the move of its Washington area activities to new and modern facilities in Gaithersburg, Maryland (20 miles northwest of the city on Interstate Route I-270), the Bureau recognized a need to increase the exchange of technology pertinent to nationally important industrial problems and make its expanded capabilities more accessible for solving these problems. With the Research Associate Program already well established as an effective vehicle for such purposes, additional emphasis was placed on the Program in 1965—and continues unabated today—to encourage participation in this unique plan for direct and mutually beneficial interaction between industry and NBS.

From a 1964 base of 10 Research Associate Programs and 32 Research Associates, all supported by trade and professional organizations, the Program has grown to encompass approximately 30 different programs and 100 Research Associates annually. This increase has been accompanied by diversity in both sponsoring organizations and the nature of the projects. Individual industrial companies now comprise approximately one-third of the sponsors. The list of current and recent programs furnished with this leaflet is indicative of the range of subjects covered by the programs.

In addition to the Bureau's continuing responsibilities for advancement of the basic measurement sciences, NBS is becoming increasingly involved in development of the measurement technology and Standard Reference Materials needed to assure regulatory reasonableness, enhance industrial productivity, and provide a uniform basis for the solution of a broad spectrum of quality assurance and other measurement-sensitive problems of national concern.

Fire safety, nondestructive evaluation, robotics, solid state device materials and integrated circuitry, electromagnetic interference, environmental measurements, materials recycling, and energy conservation are but a few of the subjects being addressed. All offer challenges and opportunities for cooperative, cost-effective problem solving through participation in the Research Associate Program.



# Questions and Answers about the Research Associate Program

## What is the Research Associate Program?

A plan which enables scientists and engineers from industrial, professional, trade and other organizations to work for specified periods on a full time basis, under the sponsorship of their employers, at either Gaithersburg, Maryland or Boulder, Colorado laboratories of the National Bureau of Standards on projects of clear mutual interest to the Sponsor and NBS.

## What does the Research Associate Program offer to industry?

- An opportunity to work under the supervision of and consult with NBS professionals of recognized stature in their fields.
- Use of the extensive laboratory and related facilities at NBS.
- Exposure to the full spectrum of NBS information and services available to industry.
- A means of communicating directly to NBS the views of industry on needs and problems requiring attention.

## What are the criteria for a Research Associate Program?

- It must have non-proprietary objectives.
- It must be within the scope of NBS activities and interests.
- It must offer the prospect of publishable results of interest and significance to the industrial and technical communities represented, and thus ultimately to the public.

## What are the opportunities for Research Associate Programs?

They are as varied as the work of NBS itself. Programs of established mutual interest will be entertained in essentially all areas of Bureau activity. The nature of these is suggested by the Technical Activities list provided with this leaflet. The technical plan for each specific Program is defined through direct discussion between the Sponsor's representatives and NBS professional staff members.

## How can a potential sponsor learn more about Research Associate Program opportunities of possible interest?

By contacting the NBS Industrial Liaison Officer, who coordinates all Research Associate Programs, provides information to potential sponsors and arranges meetings between them and the appropriate NBS personnel.

## How is a Research Associate Program established?

When a mutually acceptable plan which meets the criteria for a Research Associate Program has been defined, a Memorandum of Agreement is prepared by NBS and executed by both parties. This Agreement sets forth the nature, objective and scope of the project, names the Research Associate(s), identifies the individuals responsible for the project, and describes the terms and conditions of the relationship between the Sponsor and NBS. A model Memorandum of Agreement form is available for inspection upon request.

## Who is eligible to be a Research Associate?

Any individual having the background and experience to perform independent research in the field covered by the program. The Sponsor and NBS must agree on the qualifications and acceptability of the candidate for the assignment.

## How are Research Associates supported?

- A Research Associate remains the employee of the sponsoring organization, which pays the Associate's salary, fringe benefits and travel, and makes arrangements as necessary for temporary relocation of the Research Associate for the period of his or her assignment to the program.
- NBS provides at no cost to the Sponsor technical supervision, office and laboratory space, routine supplies and services and the use of available research equipment not normally subject to time or other usage charges.

- Special supplies and services such as materials, shop work, technician assistance, computing time, and formal report preparation are billed to the Sponsor. Charges are based on the same rates as apply to any NBS project.

#### **How long does a Research Associate work at NBS?**

Usually for a period of one to three years. Programs can be extended (or terminated) by mutual agreement of the Sponsor and NBS. Programs of extended duration are in many instances carried on by a succession of Research Associates.

#### **Can more than one Research Associate work on one program?**

Two or more Research Associates, one of whom is normally designated Senior or Principal Research Associate, may be involved simultaneously in programs of larger scope. The Sponsor may also provide Research Associate Assistants or Technicians to facilitate the work of the Research Associate(s).

#### **What about patent rights?**

Patentable output from programs of the nature described herein is generally regarded as unlikely. If an invention is made, however, the rights of the Research Associate are determined in the same manner as they would be if the inventor were an NBS employee. The disposition of any patent rights remaining with the Research Associate would then be governed by the conditions of the inventor's employment agreement with the Sponsor.

#### **For additional information, write or phone:**

P. R. de Bruyn  
Industrial Liaison Officer  
Room A402, Admin. Bldg.  
National Bureau of Standards  
Washington, D. C. 20234  
Telephone: (301) 921-3591

#### **NATIONAL ENGINEERING LABORATORY**

Applied Mathematics  
Building Technology  
Consumer Product Technology  
Electronics and Electrical Engineering  
Energy Programs  
Engineering Standards  
Fire Research  
Mechanical Engineering and  
Process Technology

#### **NATIONAL MEASUREMENT LABORATORY**

Absolute Physical Quantities  
Analytical Chemistry  
Basic Measurements and Standards  
Environmental Measurements  
Materials Science  
Measurements for Nuclear Technology  
Measurement Services  
Nondestructive Evaluation  
Radiation Research  
Recycled Materials  
Standard Reference Data  
Standard Reference Materials  
Thermodynamics and Molecular Science

#### **INSTITUTE FOR COMPUTER SCIENCES AND TECHNOLOGY**

Programming Science and Technology  
Systems Engineering

#### **TECHNOLOGY TRANSFER AND LIAISON PROGRAMS**

Industrial  
International  
State and Local Government





**A Partial List of Current  
and Recent Research  
Associate Programs  
at the National  
Bureau of  
Standards**

**Company  
Sponsored**

**American Hoechst Corporation**

Kinetic measurements of  
atmospheric constituents

**Armstrong Cork Company**

Fire research (six programs)

**Bell Laboratories**

Analysis of optical waveguide  
materials

**Bicron Corporation**

Solid radiation detectors

**Collaborative Testing Services, Inc.**

Reliability of measurement  
techniques to assure interlaboratory  
comparability

**Corning Glass Works**

Long-term dimensional stability  
measurements (two programs)

**Dow Chemical Company**

Structural properties of masonry  
fabricated with organic-modified  
mortar

Measurement of heat flux at  
interior surfaces of buildings

Industrial and commercial energy  
conservation (EPIC Handbook)

Energy conservation in mobile homes

**Eastman Kodak Company**

Solid state detectors for resolution  
of complex gamma ray spectra

Methodology for serum  
analyses

**Hewlett-Packard**

Electromagnetic interference  
measurement technology

**IBM Corporation**

Phosphor characterization

Magnetic tape performance criteria

Contact resistance of plated metals

Guidelines for controlled accessibility

**Interdata, Inc.**

Methodology for test of  
minicomputer software

**The Procter and Gamble Company**

Enhancement of industrial innovation

Physical properties of long-chain  
triglycerides

**Scientech, Inc.**

Laser power and energy  
measurement

**Skidmore, Owings & Merrill**

Thermal characteristics of high-moss  
exterior insulated wall construction

**Sperry-UNIVAC**

Information processing standards

**United States Steel Corporation**

Measurement of low-level gas  
concentrations in metals

Nuclear magnetic resonance studies  
of metallic alloys

**Aluminum Association (with  
American Electroplaters' Society)**

Plating of aluminum

**American Dental Association  
Health Foundation**

Dental materials

**American Iron and Steel Institute**

Fire endurance of steel building  
systems and structural elements

**American Society for Testing and  
Materials (ASTM)**

Standards for air pollution  
measurement

Cement and Concrete Reference  
Laboratory

Performance criteria for  
insulating glass assemblies

Standard Reference Materials  
for metals industries

**Association of Petroleum Re-Refiners**

Measurement technology for  
evaluation of recycled oil quality

**Atomic Industrial Forum**

Measurement technology for  
radiopharmaceuticals

**College of American Pathologists**

Definitive methods for clinical assays

**Edison Electric Institute/Electric  
Power Research Institute**

Accuracy of transfer, maintenance  
and use of the kilowatt-hour standard

**Gypsum Association**

Combustibility of building materials

**International Sugar Research  
Foundation**

Polarimetric determination of  
sugar composition

**Joint Committee on Powder  
Diffraction Standards (JCPDS)**

Data and techniques for  
identification of crystalline phases

**Man-Made Fiber Producers  
Association**

Flammability and flame propagation  
characteristics of carpeting

Flammability of commercial apparel  
fabrics and garments (two programs)

**Motor Vehicle Manufacturers  
Association**

Standard Reference Materials for  
emission measurements

**National Fenestration Council**

Thermal, visual, and acoustical  
benefits of fenestration

**Society of the Plastics Industry, Inc.**

Flammability of plastics



